

# Fullfat Technologies

Sustainable, reused, repurposed materials for everyday use.

## Challenge

Pollution by plastics is a worldwide and increasing problem. Plastic items such as clothing, bottles and bags degrade slowly, eventually breaking down into small particles of micro plastics. Research into micro plastics suggested that the average human could be consuming 70,000 micro plastic particles a year. Little is known of the health consequences resulting from ingestion of micro plastics.

## Solution

Fullfat Technologies are looking at alternative bio plastics derived from consumer and commercial waste. FFT are investigating methods of producing plastics derived from casein protein found in milk. Casein protein can be extracted from surplus or liquid dairy waste and used to produce a plastic which will slowly dissolve in water. Unlike traditional plastics micro particles are not formed, the casein polymer is totally soluble in water. FFT are looking at the potential use of casein based polymers in a number of applications ranging from bio-medical sensors to building materials.

## HTH Contribution

Staff from the Health Tech Hub looked at the properties of casein polymers, and how they could be adjusted by the use of cross-linking agents and plasticisers. The HTH went on to look at the potential of using casein films as a substrate for biological and chemical sensors. Films have been produced and the potential of printing electrochemical sensors onto the surface of these films is under investigation.

*“The real asset of the HTH is the creativity, enthusiasm and knowledge of the staff. The practical support shown at all levels has been second to none. Using the facilities has been very useful in terms of gaining access to professional and state of the art lab and workshop facilities to conduct initial tests and experiments in a highly sensitive and controlled environment. As a Start up SME with limited capabilities, such resources are invaluable for us to be able to conduct high quality and competitive R&D to develop our ideas further.”*

Habib Patel

Founder of Fullfat Technologies

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